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RECYCLING

Chemical recycling of plastic gets a boost in 18 US states—but environmentalists question whether it really is recycling

Some state laws allow incentives to turn plastics into fuels as well as other plastics

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Plastic pollution is virtually everywhere on earth, and the public is increasingly concerned about the buildup of plastic litter in neighborhoods, parks, and beaches as well as enormous garbage patches in the world's oceans. Haunting photos of animals entangled in plastic cords or speared with plastic straws appear regularly on social media. And **news reports about microplastics** contaminating water and food stoke concern about how to keep this ubiquitous and popular synthetic material out of the environment.

In the US, people are asking their elected leaders to reduce plastic pollution.

IN BRIEF

As the tide of plastic waste rises, the US public is turning to elected officials for solutions. Legislators in 18 states have passed laws to encourage the chemical recycling of plastic, also known as advanced recycling. These laws deem chemical recycling facilities manufacturers, not waste-handling facilities. This

To that end, environmental advocates are seeking policies to reduce the use of single-use plastics such as beverage bottles and snack bags. They point out that **less than 10% of plastic used in the US ends up recycled**.

Meanwhile, the American Chemistry Council (ACC), the major trade group for the chemical industry, is offering another plan—policies to promote **chemically recycling plastics** by breaking them down into molecular building blocks for reuse. This process, also called advanced recycling, differs from mechanical recycling. The mechanical method, still in use, chips up used plastic into bits that are blended into virgin plastic, which is made from oil or natural gas, to give it recycled content.

“Policy makers are very interested” in advanced recycling, says Craig Cookson, senior director of plastics sustainability for the ACC. “Their constituents are coming to them and saying they want to see greater amounts and more types of plastics recycled in their communities.”

Lawmakers in states are responding to the ACC's efforts. Earlier this year, Kentucky, Mississippi, South Carolina, and West Virginia enacted laws that ostensibly promote **chemical recycling of used plastic**. They joined 14 other states that have enacted similar legislation since 2017.

But environmental advocates say that these laws are the wrong way to go, in particular because existing processes for advanced recycling of plastics are energy intensive and generate pollution. The advocates also question applying the term *recycling* when the processes are used to generate fuels.

Industry effort to promote the new state laws “is all about public relations,” says Judith Enck, president of Beyond Plastics, a group that seeks to end single-use plastic pollution through the reduction and reuse of the material. Producers are trying to acknowledge that plastic pollution is a problem while preserving business, she says.

Instead of working to generate less plastic waste, companies are seeking a technical fix that will let them keep producing—and reaping huge profits from—plastic, says Renée Sharp, the strategic adviser for Safer States, an alliance of health and safety advocates that tracks environmental legislation in states.

“We’re seeing legislators who think that they’re actually doing something that’s good for the environment, but they have bought the industry line. They don’t really understand what these technologies are,” Sharp tells C&EN. Backers of the state bills include Democrats and Republicans alike.

18 AND COUNTING

In the last 5 years, 18 states (blue) have passed laws promoting the chemical recycling of plastics. Under several of those laws, converting plastics to fuels can count as recycling.

classification can pave the way for government financial incentives and less-stringent regulation.

Environmental advocates say the laws promote the processing of discarded plastics into home heating oil or other fuels through processes that are polluting and amount to incineration, which is not recycling as the public understands it. But the chemical industry says market demand for more recycled content in plastic means chemical recycling facilities are increasingly selling their products to polymer makers for feedstock. The industry is also using the state laws as backing as it seeks to loosen federal Clean Air Act regulation of facilities that use pyrolysis and gasification, two processes used for chemically recycling plastic.